REMARKS

Dependent Claim 4 has been objected to for failing to further limit associated independent Claim 1. In response, Applicants have cancelled Claim 4, without prejudice. Accordingly, withdrawal of the objection is respectfully requested.

Claims 1 and 4 stand rejected under 35 U.S.C. §103 as being unpatentable over United States Patent No. 6,463,974 to Hellweg et al. in view of United States Patent No. 4,823,854 to Payne et al. and United States Patent No. 7,100,654 to Boiocchi et al. Applicants have cancelled Claim 4, without prejudice, thereby rendering this rejection moot with respect to this claim. However, with respect to Claim 1, Applicants respectfully traverse this rejection.

Applicants respectfully submit that the cited references fail to disclose or suggest all of the claimed features of independent Claim 1. More specifically, the cited references fail to disclose or suggest a tire wheel assembly in which, *inter alia*, the relationship (W2-W1)/W1 = 0.02 to 0.100 is satisfied (assuming that W1 is an interval between abutting points where the pair of left and right elastic rings abut on the inner surface of the tire when the pneumatic tire and the run-flat support are mounted on the rim and W2 is an interval between the abutting points when the run-flat support is not mounted). Applicants' Figures 1 and 2 show the locations of widths W1 and W2. Applicants also traverse this rejection because the cited references fail to disclose or suggest the claimed tire wheel assembly that includes, *inter alia*, an annular shell composed of metal with a yield strength of 400 MPa or more, as recited in independent Claim 1.

As correctly acknowledged by the Examiner, the Hellweg et al. reference fails to disclose or suggest the claimed relationship of (W2-W1)/W1 = 0.02 to 0.100. *See* May 15, 2007 Final Office Action, page 3, lines 6-12. Accordingly, the Examiner relied upon the Payne et al. reference for this feature, wherein the Examiner asserted that column 13, lines 38-55 of Payne et al. disclose that W1=6.96 inches and W2=7.08 inches, resulting in (W2-W1)/W1 = 0.0172. *See* May 15, 2007 Final Office Action, page 3, lines 13-19.

First of all, assuming *arguendo* that the Payne et al. reference is analogous art with respect to Hellweg et al., and that one of ordinary skill in the art would have looked to Payne et al. to modify Hellweg et al., Applicants respectfully submit that the structure of the run flat insert 12 of Payne et al. is so different from the structure of run flat insert 2 of Hellweg et al. that any relationship of widths from the Payne et al. device in which the numerator consists of the difference between the unmounted width and the mounted width and the denominator consists of the mounted width is irrelevant to the device of Hellweg et al.

More specifically, the device of Hellweg et al. includes a run flat insert 2 with a ring body 3 formed with two convex portions separated by a concave portion, as shown in cross-sectional Figure 1. Ring body 3 is connected to support elements 4 and 5, which are formed of a series of stacked layers of different elasticity. If tire 34 becomes flat, the radially interior surface of tire 34 is pressed against the radially exterior surface of the ring body 3.

In contrast, the device of Payne et al. includes a band 60 without the convex and concave portions similar to those in Hellweg et al. The flat radially outer surface of band

60 preferably supports a rubber tread portion 120, which tread portion abuts against the radially interior surface of tire 12, if tire 12 becomes flat. Further, band 60 of Payne et al. is preferably made of two semicircular components that are affixed together with fasteners 86/88, while the ring body 3 of Hellweg et al. is a single annular member. Finally, Payne et al. lacks the support elements 4 and 5 found in Hellweg et al.

Thus, due to the structural differences between member 60 of Payne et al. and member 3 of Hellweg et al., especially considering the flat radially outer surface of Payne et al. compared to the undulating radially outer surface of Hellweg et al. and the lack of support elements 4 and 5 of Hellweg et al. in Payne et al., Applicants respectfully submit that it is improper to import the widths (mounted and un-mounted) from Payne et al. into the device of Hellweg et al. Further, there is no discussion in the references that the same materials were used, or that the materials had the same elasticity, or that the materials have the same thickness, all of which need to be considered when determining the appropriate relationship between the mounted and un-mounted widths. Accordingly, Applicants respectfully submit that the claimed relationship between W1 and W2 is not disclosed or suggested in the cited references. Therefore, for at least this reason, Applicants respectfully request the withdrawal of this rejection.

Second, Applicants respectfully submit that the widths of 6.96 and 7.08 of Payne et al. asserted by the Examiner are not the same widths as the widths represented by W1 and W2 defined in independent Claim 1, but are instead measurements of the widths of a different interval. As shown in Applicants' Figures 1 and 2, and as recited in Claim 1, widths

W1 and W2 are measured between the abutting portions of the elastic rings (such as rings 5 of Applicants' Figure 1) when mounted (W1 of Figure 1) and when not mounted (W2 of Figure 2). In contrast, the values of 6.96 and 7.08 of Payne et al. are the widths between the outer edges of shell 60, and not between the elastic rings (Payne et al. lacks elastic rings). Thus, because the intervals being measured in Payne et al. are different than those defined in Applicants Claim 1, Applicants respectfully submit that the claimed relationship of (W2-W1)/W1 = 0.02 to 0.100 defined in Claim 1 is not disclosed or suggested in Payne et al. Nor is it disclosed or suggested in any of the other cited references. Thus for at least this reason also, Applicants respectfully request the withdrawal of this §103 rejection of independent Claim 1.

In response to the argument of the preceding paragraph, the Examiner argued that the Payne et al. reference is analogous art, and can be relied upon for the rejection. *See* May 15, 2007 Final Office Action, page 5, lines 1-6. Applicants respectfully submit that the Examiner appears to have misunderstood Applicants' argument, which was not a non-analogous art argument (which relates to an entire reference being of a different field of endeavor, *see* MPEP §2141.01(a)), but was instead that the widths taken from Payne et al. cannot be applied to Claim 1 because they are not measures of the same dimension defined in the claim. Applicants have not asserted that the Payne et al. reference was non-analogous art to the Hellweg et al. reference. Instead, Applicants asserted that the dimensions taken from Payne et al. measure a different interval than the interval defined in Claim 1.

In the Examiner's response on page 5 (lines 6-13) of the Final Office Action,

the Examiner also asserted that the widths 6.96 and 7.08 of Payne et al. are analogous to widths W1 and W2 because both are intervals between two points that are each found on an abutting inner surface of the tire (mounted and un-mounted). However, as can be seen when comparing Figure 1 of Hellweg et al. with Figure 1 of Payne et al., insert 3 of Hellweg et al. does not reach the inner surfaces of the tire, while band 60 of Payne et al. does. Thus, assuming the same tire width, the insert 3 of Hellweg et al. will be of a smaller width than band 60 of Payne et al. The widths 6.96 and 7.08 of Payne et al. are widths of a resilient steel band in a stressed and a free state, respectively, and both widths are measures of the resilient steel. In contrast, measuring widths that extend beyond the edges of the resilient steel, to include support elements 4 of Hellweg et al., are not measurements of widths of resilient steel, but also include the addition of widths of portions of the support elements. There is no indication that the support elements will have the same elasticity as the steel band. Accordingly, the amount of resilience intended with the stressed and free state dimensions of the resilient steel band in Payne et al. may not be achieved when the same dimensions are applied to an interval that includes components other than the resilient steel, as in Hellweg et al., which includes support elements 4. Thus, for at least this reason also, Applicants respectfully request the withdrawal of this §103 rejection.

Third, even assuming *arguendo* that Applicants agreed that the Examiner's proposed combination was obvious, and that the asserted relationship of (W2-W1)/W1 = 0.0172 resulted because the intervals for W1 and W2 asserted by the Examiner were equivalent to the claimed intervals W1 and W2, such a combination still fails to read on the

claimed relationship of Claim 1. This is the case because Claim 1 recites that (W2-W1)/W1 = 0.02 to 0.100, and the Examiner's asserted value of 0.0172 does not fall within the claimed range of 0.02 to 0.100. Further, the Boiocchi et al. reference does not disclose or suggest this feature either, nor was it relied upon by the Examiner for this feature. Accordingly for at least this reason also, Applicants respectfully request the withdrawal of this § 103 rejection of independent Claim 1.

The Examiner has argued that it would have been obvious to modify the dimensions provided by Payne et al. so that the result of the relationship (W2-W1)/W1 is within the claimed range of 0.02 to 0.100 because such modification is a mere design consideration. In other words, the Examiner's argument is that it would have been obvious to optimize the dimensions so that the result of the relationship (W2-W1)/W1 was within the claimed range.

In response, the Examiner is reminded that only result-effective variables can be optimized. *See* MPEP §2144.05(II)(B). As stated in MPEP §2144.05(II)(B), "A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation." *See also* In re Antonie, 195 USPQ 6 (C.C.P.A. 1977).

The facts of In re Antonie, in which the court reversed a rejection based on the optimization (routine experimentation) rationale, can be analogized to the instant case. In In re Antonie, the court reversed a rejection for claims directed to a water treatment device

where the rejection was based on the premise that it was obvious to optimize the ratio of the tank volume to a contactor area (which is the area of a set of rotating disks that contacts the liquid in the tank). Id. at 7. The prior art disclosed that changing the contactor area could increase the efficiency of the device, but it did not disclose or suggest modifying the tank volume. Id. More importantly, the prior art did not disclose or suggest that the ratio of the tank volume to the contactor area was related to the desired result of increasing efficiency, i.e., that the claimed ratio was known to be a result-effective variable.

Similarly, in the instant application, the relationship (W2-W1)/W1 is not disclosed as being a know result effective variable. None of the cited references even mentions this relationship. Thus, since the cited references do not disclose or suggest the presently claimed relationship of (W2-W1)/W1, the cited references also fail to utilize the particular claimed relationship to obtain the desired result of a range within 0.02 and 0.100. Accordingly, for this reason also, Applicants respectfully request the withdrawal of this rejection because the cited references fail to disclose or suggest all of the features of the claimed invention as defined in independent Claim 1.

Fourth, Applicants also respectfully submit that the §103 rejection should be withdrawn because the proposed combination also lacks the claimed annular shell that is composed of a metal with a yield strength of 400 MPa or more, as defined in independent Claim 1. As correctly acknowledged by the Examiner, the Hellweg et al. reference and the Payne et al. reference both fail to disclose or suggest this feature. Accordingly, the Examiner relied upon the Boiocchi et al. reference for this feature.

However, Applicants respectfully submit that the annular body 5 of Boiocchi et al. is not equivalent to the annular shell 3 of Hellweg et al., nor is it equivalent to the annular shell of the present invention. Accordingly, one of ordinary skill in the art would not have modified the shell 3 of Hellweg et al. based on annular body 5 of Boiocchi et al. More specifically, annular body member 5 of Boiocchi et al. is a toroid- or doughnut-shaped member formed by outer surface 7, inner surface 8 and side surfaces 9 and 10. Body member 5 encloses a filler 6 that is made of an expanded material. In contrast, annular shell 3 of Hellweg et al. is not doughnut- or toroid-shaped, but is instead merely a ring-shaped body with no inner surface. Further, annular shell 3 of Hellweg et al. lacks the filler 6 of Boiocchi et al. Accordingly, since the structural and operational features of body member 5 of Boiocchi et al. are different from those of shell 3 of Hellweg et al., Applicants respectfully submit that one of ordinary skill in the art would not have used a feature of body member 5 of Boiocchi et al. (its material and yield strength) to modify shell 3 of Hellweg et al. Thus, for this reason also, Applicants respectfully request the withdrawal of this §103 rejection of independent Claim 1.

In response to the argument of the preceding paragraph, the Examiner argued that the Payne et al. reference is analogous art, and can be relied upon for the rejection. *See* May 15, 2007 Final Office Action, page 6, lines 5-15. Applicants respectfully submit that the Examiner appears to have misunderstood Applicants' argument in this instance also, which was not a non-analogous art argument (which relates to an entire reference being of a different field of endeavor, *see* MPEP §2141.01(a)), but was instead that because the

structures of Boiocchi et al. and Hellweg et al. are operationally and structurally different, such as being shaped differently and including/lacking filler, a suitable material and the required yield strength for body 5 of Boiocchi et al. is not necessarily a suitable material with the appropriate yield strength for shell 3 of Hellweg et al. Accordingly, for this reason also, Applicants respectfully request the withdrawal of this §103 rejection of Claim 1.

Fifth, Applicants also respectfully submit that the § 103 rejection should be withdrawn because the assembly problems solved by Hellweg et al. are not present in Payne et al. because Payne et al. is a "take-apart multi-piece" wheel rim (i.e., a segment type wheel rim), while the present invention and Hellweg et al. relate to a one-piece body structured rim. More specifically, the safety insert in Payne et al. (which corresponds to the annular shell of the present invention) is mounted onto the take-apart multi-piece wheel rim. Since Payne et al. appears to make assembly work of the safety insert easier by segmenting the wheel rim, Payne et al. fails to contain the concept of overcoming the difficulty of assembling an annular shell with a rim of a one-piece body structure as found in Hellweg et al. and/or the present invention. Accordingly, it technically makes no sense to apply the distance (interval) between the knees 68 and 70 in Payne et al. to the constitution of the run flat insert of Hellweg et al., because there is not motivation to do so.

In contrast to the above, according to the present invention, assembling together of a rim of a one-piece body structure and an annular shell in circumferentially one-piece body structure can be facilitated. Moreover, the rim-shell assembling operation is facilitated as above for the first time when all three of the following requirements are

satisfied: (1) the relation (W2-W1)/S1=0.02 to 0.10 is satisfied; (2) the JIS-A hardness of the elastic rings is 50 to 60; and (3) the annular shell is composed of metal with a yield strength of 400 MPa or more. Furthermore, as the elastic rings are firmly seated in a place where the elastic rings 5 and 5 abut on the inner surface of the tire based on its own restoring force, thereby the durability in run-flat driving can be enhanced (paragraph [0022] of the current specification). Accordingly, for this reason also, Applicants respectfully request the withdrawal of this § 103 rejection.

For all of the above reasons, Applicants request reconsideration and allowance of the claimed invention. Should the Examiner be of the opinion that a telephone conference would aid in the prosecution of the application, or that outstanding issues exist, the Examiner is invited to contact the undersigned attorney.

Respectfully submitted,

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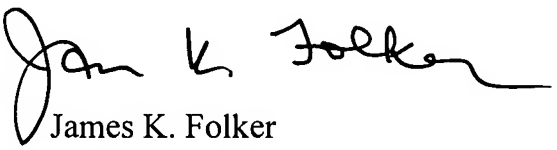
By 
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